WHAT IS CLAIMED IS:

1. An optical disk device, comprising a radiation light source, an objective lens, an optical splitter, and a photodetector,

wherein light emitted from the radiation light source passes through the objective lens to be focused on a signal plane of an optical disk;

light reflected by the signal plane passes through the objective lens to enter the optical splitter;

the optical splitter is divided into four quadrants Ak (wherein $k = 1, 2, 3, 4$) by two straight lines (a y-axis parallel with an optical disk radial direction and an x-axis orthogonal thereto) that intersect with an optical axis;

the photodetector is divided into at least four regions Bk;

first-order diffracted lights ak are derived from light that has entered the quadrants Ak by the optical splitter and are projected on the regions Bk of the photodetector, respectively;

sections of the first-order diffracted lights a2 and a3 taken along the x-axis lie approximately on a boundary between the regions B2 and B3; and

the first-order diffracted lights a1 and a4 are distributed on the photodetector apart from each other.

2. The optical disk device according to claim 1, wherein a tracking error signal TE with respect to the optical disk is generated according to a formula of $TE = C1 - C4 - (C2 - C3) / m$, where Ck denotes a signal detected in the region Bk (wherein $k = 1, 2, 3,$ or 4), and m indicates a value of 1 or higher.

3. The optical disk device according to claim 1, wherein minus first-order diffracted lights ak' (wherein $k = 1, 2, 3, 4$) are derived from light that has entered the quadrants Ak by the optical splitter, the minus first-order diffracted light a2' is focused on a detection plane without being inverted with respect to a substantial y-axis direction, and the minus first-order diffracted light a3' is inverted with respect to the substantial y-axis direction to be focused on the detection plane.

4. An optical disk device, comprising a first radiation light source, a second radiation light source, an objective lens, an optical splitter, and a

photodetector,

wherein the first and second radiation light sources are disposed on the photodetector;

light emitted from the first radiation light source passes through the objective lens to be focused on a signal plane of a first optical disk;

light reflected by the signal plane passes through the objective lens to enter the optical splitter;

the optical splitter is divided into four quadrants *Ak* (wherein $k = 1, 2, 3, 4$) by two straight lines (a y-axis parallel with an optical disk radial direction and an x-axis orthogonal thereto) that intersect with an optical axis;

the photodetector is divided into at least four regions *Bk*;

first-order diffracted lights *ak* are derived from light that has entered the quadrants *Ak* by the optical splitter and are projected on the regions *Bk* of the photodetector, respectively;

light that is emitted from the second radiation light source and has a different wavelength from that of the light emitted from the first radiation light source passes through the objective lens to be focused on a signal plane of a second optical disk; and

light reflected by the signal plane of the second optical disk passes through the objective lens to enter the optical splitter, and first-order diffracted lights *bk* are derived from light that has entered the quadrants *Ak* by the optical splitter and are projected on the regions *Bk* of the photodetector, respectively.

5. The optical disk device according to claim 4, wherein sections of the first-order diffracted lights a2 and a3, or b2 and b3 taken along the x-axis lie approximately on a boundary between the regions B2 and B3, and the first-order diffracted lights a1 and a4, or b1 and b4 are distributed on the photodetector apart from each other.

6. The optical disk device according to claim 4, wherein a tracking error signal *TE* with respect to the first or second optical disk is generated according to a formula of $TE = C1 - C4 - (C2 - C3) / m$, where *Ck* denotes a signal detected in the region *Bk* (wherein $k = 1, 2, 3$, or 4), and m indicates a value of 1 or higher.

7. The optical disk device according to claim 4, wherein minus first-order diffracted lights ak' or bk' (wherein $k = 1, 2, 3, 4$) are derived from light that has entered the quadrants Ak by the optical splitter, the minus first-order diffracted light a2' or b2' is focused on a detection plane without being inverted with respect to a substantial y-axis direction, and the minus first-order diffracted light a3' or b3' is inverted with respect to the substantial y-axis direction to be focused on the detection plane.

8. An optical disk device, comprising a first radiation light source, a second radiation light source, an objective lens, an optical splitter, and a photodetector,

wherein the optical splitter has a configuration with a birefringent medium having a periodic concave-convex cross-section;

light having a wavelength $\lambda 1$ emitted from the first radiation light source enters the optical splitter to be converted into light having a phase difference of about $2n\pi$ (where n is an integral number other than zero) periodically;

the light passes through the objective lens to be focused on a signal plane of a first optical disk;

light reflected by the signal plane passes through the objective lens and then enters the optical splitter to be converted into light having a phase difference of about $2n\pi+\alpha$ (where α denotes a real number other than zero) periodically, and diffracted light derived from the light enters the photodetector to be detected;

light having a wavelength $\lambda 2$ emitted from the second radiation light source enters the optical splitter to be converted into light having a phase difference of about $2n\pi\lambda 1/\lambda 2$ periodically;

the light passes through the objective lens to be focused on a signal plane of a second optical disk;

light reflected by the signal plane of the second optical disk passes through the objective lens and then enters the optical splitter to be converted into light having a phase difference of about $(2n\pi+\alpha)\lambda 1/\lambda 2$ periodically; and

diffracted light derived from the light enters the photodetector to be detected.

9. An optical splitting device, comprising a first radiation light source,

a second radiation light source, an objective lens, an optical splitter, and a photodetector,

wherein the optical splitter has a configuration with a birefringent medium having a periodic concave-convex cross-section;

light having a wavelength $\lambda 1$ emitted from the first radiation light source enters the optical splitter to be converted into light having a phase difference of about $2n\pi$ (where n is an integral number other than zero) periodically;

the light passes through the objective lens to be focused on a signal plane of a first optical disk;

light reflected by the signal plane passes through the objective lens and then enters the optical splitter to be converted into light having a phase difference of about $2n\pi+\alpha$ (where α denotes a real number other than zero) periodically, and diffracted light derived from the light enters the photodetector to be detected;

light having a wavelength $\lambda 2$ emitted from the second radiation light source enters the optical splitter to be converted into light having a phase difference of about $2n\pi\lambda 1/\lambda 2$ periodically;

the light passes through the objective lens to be focused on a signal plane of a second optical disk;

light reflected by the signal plane of the second optical disk passes through the objective lens and then enters the optical splitter to be converted into light having a phase difference of about $(2n\pi+\alpha)\lambda 1/\lambda 2$ periodically; and

diffracted light derived from the light enters the photodetector to be detected.